Journal of Advanced Zoology
ISSN: 0253-7214
Volume 44 Special Issue S-5 Year 2023 Page 1300:1303

A Survey on Prevalence of Respiratory Tract Infections in Paediatrics

G. Bhagya Buela[1], Ugandar.R. E[2]*, Manasa.P[3], Sasikala Chinnappan[4], Kiran.C. Nilugal[5] V.Ramanarayana Reddy[6], S. Jagadish[7]

[1]*Shadan women's College of Pharmacy, Pragathi Nagar-500090, Hyderabad. Telangana-India.*
[2*,3]*Department of Pharmacy Practice, Santhiram College of Pharmacy, Nandyal-518112, Andhrapradesh-India.*
[4]*Faculty of Pharmaceutical Sciences, UCSI University, Cheras, Kuala Lumpur-56000, Malaysia.*
[5]*School of Pharmacy, Management, and Science University, Shah Alam-40100, Selangor, Malaysia.*
[6]*Department of Pharmacy Practice, Jagans Institute of Pharmaceutical Sciences, Nellore-524346, Andhrapradesh-India.*
[7]*Department of Pharmacy Practice, Prabhath Institute of Pharmacy, Nandyal, Andhrapradesh-India.*

**Corresponding Author's: Ugandar. R.E*

Article History

Received: 12 June 2023
Revised: 21 Sept 2023
Accepted: 24 Oct 2023

Abstract

The study includes a survey on various Respiratory Tract Infections emerging among pediatrics of age groups ranging from 1 month to 12 years, at various Hospitals in and around the Nandyal region of Andhra Pradesh, India. The study was conducted with a questionnaire-based survey with informed assent forms from the parents of the 144 minor male and female subjects, 44.4% and 55.6% respectively among each gender. Among the study subjects, 75% were from urban regions and 25% were from rural regions. Results revealed upper Respiratory Tract Infections of which 30.6% of subjects were infected with Otitis media, 11.1% were infected with Sinusitis, and 2.7% were diagnosed with Tonsillitis. The lower Respiratory Tract Infections of which 30.6% of subjects were infected with Pneumonia, 11.1% were infected, and 11.1% were infected with Tuberculosis. Disorders related to Shortness of Breath were Bronchitis observed among 33.3% with Paroxysmal Nocturnal Dyspnoea, 22.2% with Dyspnoea, and 11.1% were infected with Orthopnea. Among the study population, 52.8% reported experiencing with history of respiratory tract illness, and 50% of the subject's family members with positive history of RTI.

Keywords: *RTIs, Sinusitis, Tonsillitis, Pneumonia, Bronchitis and Dyspnoea*

1. Introduction

Respiratory tract infections (RTIs) are infections of parts of the body involved in breathing, such as the sinuses, throat, airways, or lungs. Most RTIs get better without treatment, but sometimes you may need to see a Physician. Common symptoms of RTI may include; cough, sneezing, a stuffy or runny nose, sore throat, headaches, muscle aches, breathlessness, tight chest or wheezing, a high temperature, and feeling generally unwell. Children develop on average six viral respiratory tract infections each year. Viral respiratory tract infections are typically divided into Upper respiratory tract infections: Symptoms occur mainly in the nose and throat. Viral upper respiratory tract infections may occur at any age and include the common cold and influenza.

Lower respiratory tract infections: Symptoms occur in the windpipe, airways, and lungs. Viral lower respiratory tract infections are more common among children and include croup, bronchiolitis, and pneumonia. Children sometimes have infections involving both the upper and lower respiratory tracts[1].Extensive research exists on the physiopathology of these diseases and their overall association with individual risk factors. These factors include environmental conditions such as indoor and outdoor air quality which are often affected by burning biofuels[2], wildfires[3], and traffic congestion[4], and climatic factors such as temperature and precipitation[5,6], Social and demographic characteristics have also been relevant, including poverty[7,8], the age for both the very young and the elderly being at higher risk[9].

2. Materials and Methods

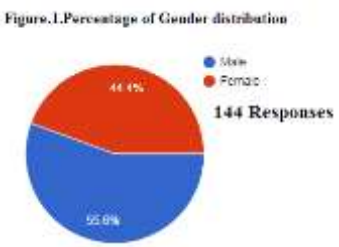
The study was carried out at various Hospitals in and around the Nandyal region of Andhrapradesh, India, which included their In and Outpatients. The study included a questionnaire-based survey with informed assent forms. The data was collected from the parents or attendants of 144 subjects who reported with various symptoms of RTIs. From the interpreted results, the most affected age group, gender, geographical regions, percentage of population affected with upper RTIs and lower RTIs, vaccination status, and influence of parents' social habits and food habits of the subjects were interpreted and analyzed as sources of RTIs among pediatrics. The prevalence of upper and lower RTIs was assessed.

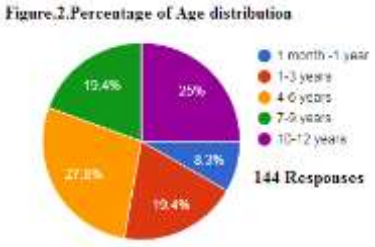
3. Results and Discussion

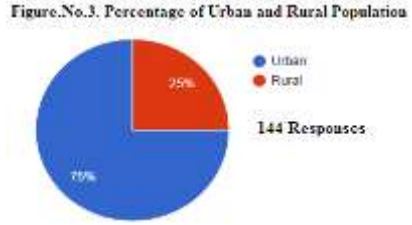
Among 144 samples diagnosed with RTIs, 56.6% were Males and 44.4% were found to be females and the samples included children of various age groups among which ages ranging from 1 month to 1 Year were found to be 8.3%, 1 to 3 years were found to be 19.4%, 4 to 6 years were found to be 27.8%, 7 to 9 years were found to be 19.4% and 10 to 12 years were found to be 25%. 75% of the samples were from the Urban region and 25% were from rural regions. The incidence of Acute Respiratory Infections (ARI) is high among under-five children, especially in developing countries. However, the data on ARI from rural and urban areas in India are scarce[2]. Acute Respiratory Infections (ARIs) account for more than 6% of the worldwide disease burden in children under the age of five. Among the parents of the subjects, 25% of the mothers were housewives 75% were working women, 41.7% of the fathers were labourers, 27.8% were Teachers, 22.2% were businessmen and 8.3% were others. From the results, it has been observed that the children of age group 4 to 6 years were predominantly affected by RTIs majority of them were from urban regions.

Among the diagnosed 44.4% of subjects with upper RTI, 30% of the subjects were observed to have a Common Cold, 11.1% were found to have Sinusitis, and 2.7% were found to have Tonsillitis and the results represented the common cold was more prevalent upper RTI among the study samples. Among the diagnosed lower RTIs, 30.6% of the subjects were observed to have Pneumonia, 11.1% Tuberculosis, 11.1% Bronchitis, and 8.3% Bronchiolitis. The study results represented Pneumonia as more prevalent among the study samples with lower RTI. Samples have reported Shortness of Breath (SoB) among them, 33.3% were due to Paroxysmal nocturnal Dyspnoea, 22.2% were due to Dyspnoea and 11.1% were due to Orthopnea. From the results, SoB due to Paroxysmal Nocturnal Dyspnoea was observed to be more prevalent among the study samples.52.8% of the total subjects were found to have a history of RTIs, 50% had a family history, 41.7% were with parents who are smokers. Cigarette smoking, a modifiable poor prognostic predictor, was established as a risk factor for an unsuccessful treatment outcome in a dose-dependent manner among the poor prognosticIndicators[10]. 19.4% of the total subjects were allergic to cool air and 8.3% were allergic to Dust exposure. 36.1% were found to have a habit of consuming Cool Food items. 97.2% of the samples were reported to be vaccinated.

Pie-Charts Representing the Prevalence of Rtis







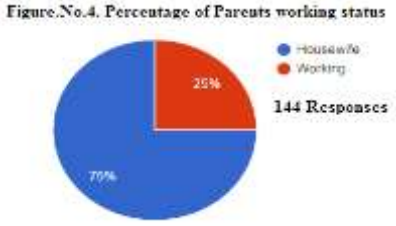


Figure.No.5. Percentage of nature of Parents work

Figure.No.6. Percentage distribution of samples diagnosed with Upper RTIs

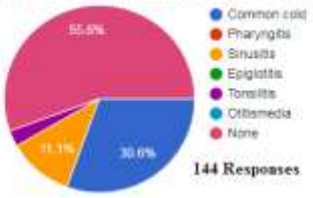


Figure.No.7. Percentage distribution of samples diagnosed with Lower RTIs

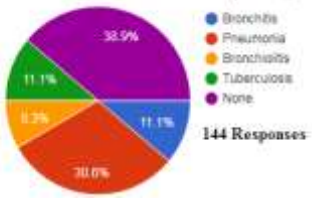


Figure.No.8. Percentage distribution of disorders causing SoB

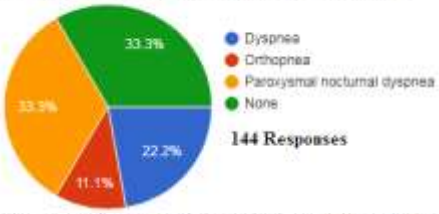


Figure.No.9. Percentage distribution of subjects with past history of RTIs

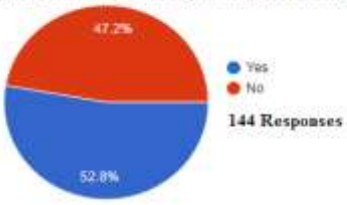


Figure.No.10. Percentage distribution of subjects with Family history of RTIs

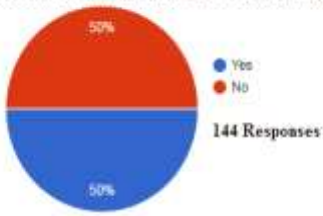


Figure.No.11. Percentage distribution of parents who are smokers

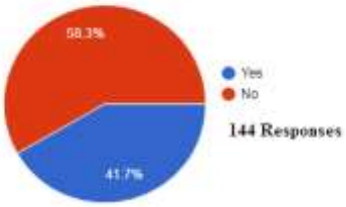


Figure.No.12. Percentage distribution of subjects with Ullergies

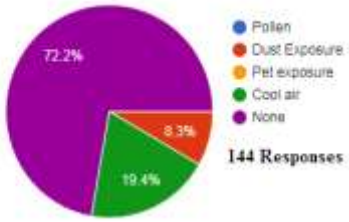


Figure.No.13. Percentage of subjects having habit of Cool Food items

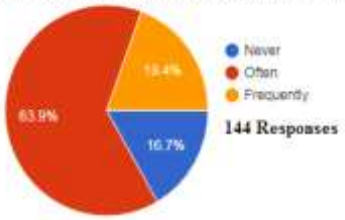
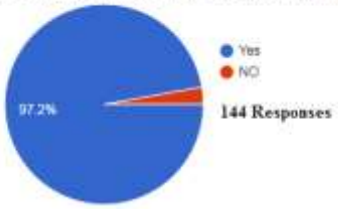


Figure.No.14. Percentage of samples who were vacciaated already



4. Conclusion

From the study results it has been observed that Respiratory tract Infections were more prevalent among the paediatric population of age group 4 to 6 years in urban areas than in rural areas, which may be due to more pollution, food habits, lifestyle, parents work status, nature of work and social habits. Among the upper Respiratory Tract Infections, the subjects were observed to have Common Cold, Sinusitis, and Tonsillitis, representing the common cold as more prevalent in upper RTIs among the study samples. Among the diagnosed lower RTIs, the study subjects were observed to have Pneumonia, Tuberculosis, Bronchitis, and Bronchiolitis, representing Pneumonia as more prevalent among the study samples as lower RTI. Samples have reported Shortness of Breath (SoB) among them, SoB due to Paroxysmal Nocturnal Dyspnoea, due to Dyspnoea, and due to Orthopnea were observed which indicated SoB due to Paroxysmal nocturnal Dyspnoea was more prevalent among the study samples. The most affected age group was found to be between 4-6 years. Among the entire sample, males were more affected by gender, in geographically urban regions, 44.4% of the population was affected with upper RTIs and remained with lower RTIs despite even 97.2% of the population being vaccinated status. The influence of parents' social habits and food habits of the subjects were interpreted analyzed and concluded as primary sources of RTIs among paediatrics.

Acknowledgements

The authors acknowledge all for their relevant contributions to the work.

Conflict of interest

The authors state that they do not have any competing interests.

References:

1. National Health Service. (n.d.). Respiratory tract infection. Retrieved from https://www.nhs.uk/conditions/respiratory-tract-infection/
2. Nsoh, M., Mankollo, B. O. Y., Ebongue, M., Cyprien, K. N., Likeng, J. L. N., Islam, S. M. S., ... et al. (2019). Acute respiratory infection related to air pollution in Bamenda, North West Region of Cameroon. Pan African Medical Journal, 32(1), 99.
3. Hanigan, I. C., Johnston, F. H., & Morgan, G. G. (2008). Vegetation fire smoke, indigenous status and cardio-respiratory hospital admissions in Darwin, Australia, 1996–2005: A time-series study. Environmental Health, 7(1), 42.
4. Chakrabarti, S., Khan, M. T., Kishore, A., Roy, D., & Scott, S. P. (2019). Risk of acute respiratory infection from crop burning in India: Estimating disease burden and economic welfare from satellite and national health survey data for 250,000 persons. International Journal of Epidemiology, 48(4), 1113–1124.
5. Mollalo, A., Vahedi, B., Bhattarai, S., Hopkins, L. C., Banik, S., & Vahedi, B. (2020). Predicting the hotspots of age-adjusted mortality rates of lower respiratory infection across the continental United States: Integration of GIS, spatial statistics, and machine learning algorithms. International Journal of Medical Informatics, 142, 104248.
6. Ho, N. T., Thompson, C., Nhan, L. N. T., Van, H. M. T., Dung, N. T., Tran My, P., ... et al. (2018). Retrospective analysis assessing the spatial and temporal distribution of pediatric acute respiratory tract infections in Ho Chi Minh City, Vietnam. BMJ Open, 8(1), e016349.
7. Holmen, J., Reingold, A., Bye, E., Kim, L., Anderson, E. J., Bennett, N. M., ... (Eds.). (2020). Relationship between neighborhood census-tract level poverty and respiratory syncytial virus (RSV)-associated hospitalizations in US adults, 2015–2017. Oxford University Press US. Open Forum Infectious Diseases.
8. Kumar, S. G., Majumdar, A., Kumar, V., Naik, B. N., Selvaraj, K., & Balajee, K. (2015). Prevalence of acute respiratory infection among under-five children in urban and rural areas of Puducherry, India. Journal of Natural Science, Biology, and Medicine, 6(1), 3-6. https://doi.org/10.4103/0976-9668.149069
9. Tesema, G. A., Worku, M. G., Alamneh, T. S., et al. (2022). Understanding the rural–urban disparity in acute respiratory infection symptoms among under-five children in Sub-Saharan Africa: A multivariate decomposition analysis. BMC Public Health, 22, 2013. https://doi.org/10.1186/s12889-022-14421-0
10. Noorjahan, A., Bhargavi, B., Mallikarjuna, K., Ishaq, B. M., Reddy, L. S. S., & Ugandar, R. E. (2021). A prospective observational study on prevalence and prognostic indicators among tuberculosis and multidrug resistance tuberculosis patients in a tertiary care teaching hospital. Journal of Pharmaceutical Research International, 33(19A), 43–48. https://doi.org/10.9734/jpri/2021/v33i19A31326.